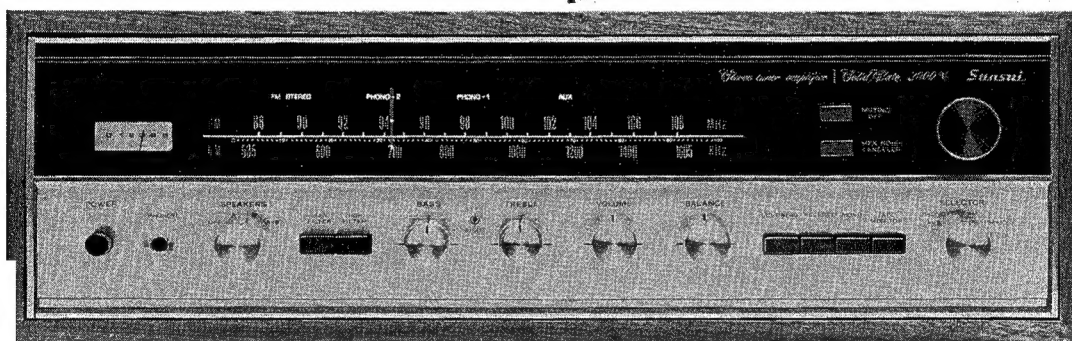


SERVICE MANUAL

SOLID-STATE AM/FM STEREO TUNER AMPLIFIER

SANSUI 2000X



Sansui

SANSUI ELECTRIC COMPANY LIMITED

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GENERAL TROUBLESHOOTING CHART

If the amplifier is otherwise operating satisfactorily, the more common causes of trouble may generally be attributed to the following:

1. Incorrect connections or loose terminal contacts. Check the speakers, record player, tape recorder, antenna and line cord.
2. Improper operation. Before operating any audio com-

ponent, be sure to read the manufacturer's instructions.

3. Improper location of audio components. The proper positioning of components, such as speakers and turntable, is vital to stereo.

4. Defective audio components.

The following are some other common causes of malfunction and what to do about them:

PROGRAM	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
AM, FM or MPX reception	A. Constant or intermittent noise heard at times or in a certain area	<ul style="list-style-type: none"> * Discharge or oscillation caused by electrical appliances, such as fluorescent lamp, TV set, D.C. motor, rectifier or oscillator * Natural phenomena, such as atmospherics, statics or thunderbolts * Insufficient antenna input due to ferroconcrete wall or long distance from the station * Wave interference from other electrical appliances 	<ul style="list-style-type: none"> * Attach a noise limiter to the electrical appliance causing the noise, or attach it to the amplifier's power source * Install an outdoor antenna and ground the amplifier to raise the signal-to-noise ratio * Reverse the power cord plug-receptacle connections * If the noise occurs at a certain frequency, attach a wave trap to the ANT. input * Keep the set at a proper distance from other electrical appliances
	B. The needle of the tuning meter does not move sharply	* Receiver is located in a weak signal area	* Place the set to receive maximum signal strength
	C. The zero point of the meter diverges much	* Regional difference in field intensity.	* The unit is not at fault
AM reception	A. Noise heard at a particular time of a day, in a certain area or over part of dial	* Due to the nature of AM broadcasts	<ul style="list-style-type: none"> * Install the antenna for maximum antenna efficiency. See "ANTENNA" in the operating instructions * In some cases, the noise can be eliminated by grounding the amplifier or reversing the power cord plug-receptacle connections
	B. High-frequency noise	<ul style="list-style-type: none"> * Adjacent-channel interference or beat interference * TV set too close to audio system 	<ul style="list-style-type: none"> * Although such noise cannot be eliminated by the amplifier, it is advisable to adjust the TREBLE control from midpoint to left and switch on the HIGH FILTER * Keep the TV set at a proper distance from the audio system
FM reception	A. Noisy	* Poor noise limiter effect or too low SN ratio due to insufficient antenna input	<ul style="list-style-type: none"> * Install the antenna (supplied) for maximum signal strength * If this does not prove effective, use an outdoor antenna designed exclusively for FM. When you use a TV antenna for both TV and FM with a splitter, make sure TV reception is not affected * An excessively long antenna may cause noise
Note: FM reception is affected considerably by transmission conditions of stations: power and antenna efficiency. As a result, you may receive one station quite well while receiving another station poorly			

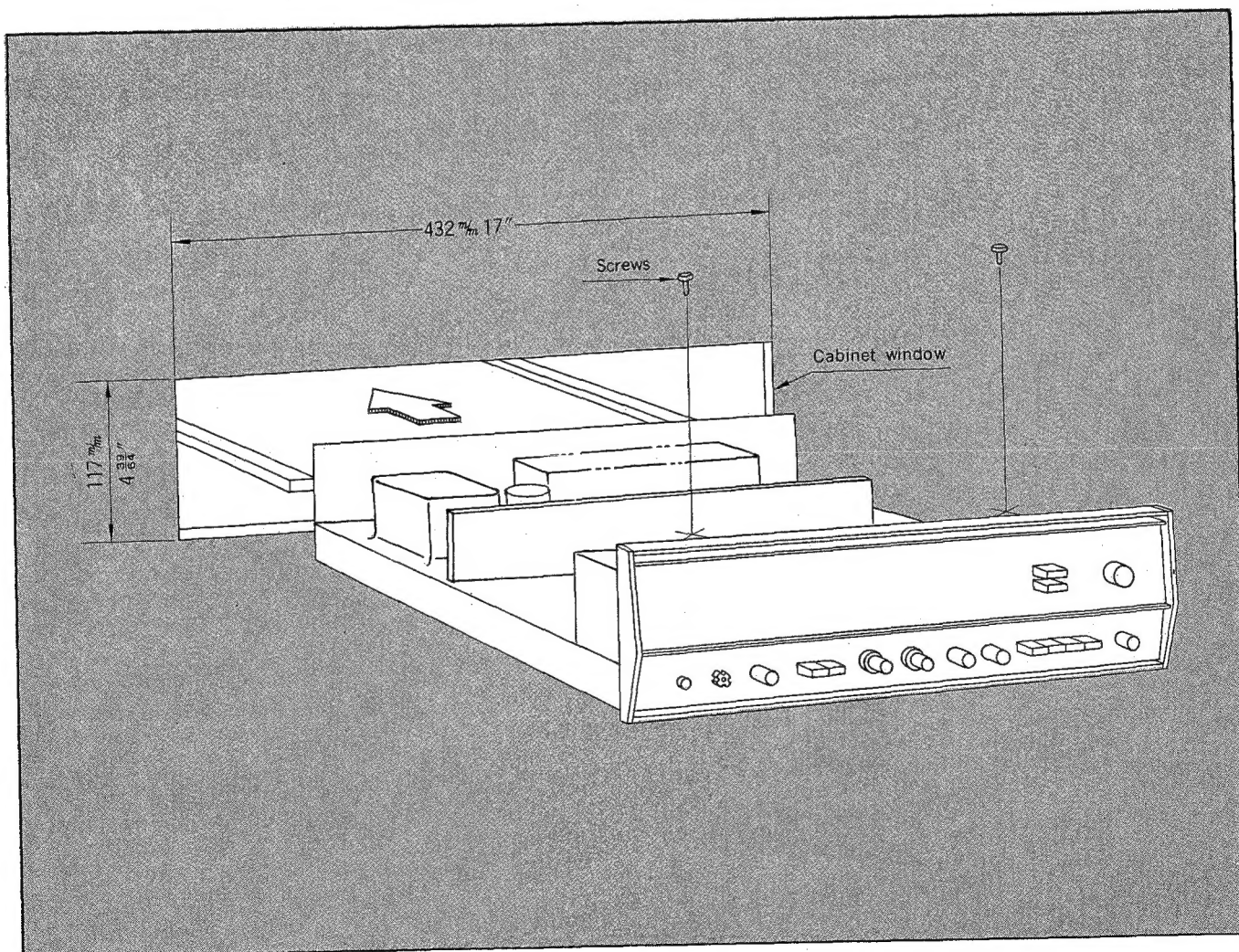
PROGRAM	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
FM reception (cont'd)	B. A series of pops is heard	* Ignition noise caused by an automobile engine	* Install the antenna and its lead-in wire in proper distance from the road or raise the antenna input as described above
	C. Tuning noise between stations	* This results from the nature of the FM reception. As the station signal becomes weak, the noise limiter effect is decreased, and the amplification of the limiter, in turn, is enlarged, generating a noise	* Turn the muting on.
FM-MPX reception	A. Noise heard during FM-MPX reception while not heard during FM mono reception	* Weaker signal because the service area of the FM-MPX broadcast is only half that of the FM mono broadcast	* Install the antenna for maximum antenna input * Switch on the HIGH FILTER and/or turn the TREBLE control from midpoint, left
	B. Clearness of channel separation is decreased during reception	* Excess heat	* Circulation of air is important to the amplifier. Be sure that air is flowing under the amplifier
	C. The stereo indicator blinks on and off	* Interference	* The indicator is not at fault. Adjust VR ₄₀₁
	D. The stereo indicator blinks on and off even though stereo station is not received	* Interference	* The indicator is not at fault. Adjust VR ₄₀₁
Record playing or tape playback	A. Hum or howling	* Record player placed directly on speaker * Wire other than shielded wire used * Loose terminal contact * Shielded wire too close to line cord, fluorescent lamp or other electrical appliances * Nearby amateur radio station or TV transmission antenna	* Place a cushion between the player and the speaker box or place them away from each other * The connecting shielded wire should be as short as possible * Switch on the LOW FILTER and turn the BASS control from midpoint to left * Consult the nearest Radio Regulatory Bureau
	B. Surface noise	* Worn or old record * Worn stylus * Stylus dusty * Improper stylus pressure * Worn playback head	* Switch on the HIGH FILTER and turn the TREBLE control from midpoint to left * Clean or replace the stylus * Replace the playback head.
All stereo programs	BALANCE control is not at midpoint when equal sound comes from left and right channels	* It is important to adjust for equal sound from both channels. It should not always be set to the midpoint	* Set the MONO switch to MONO and then set the BALANCE control to a position where equal sound comes from both channels

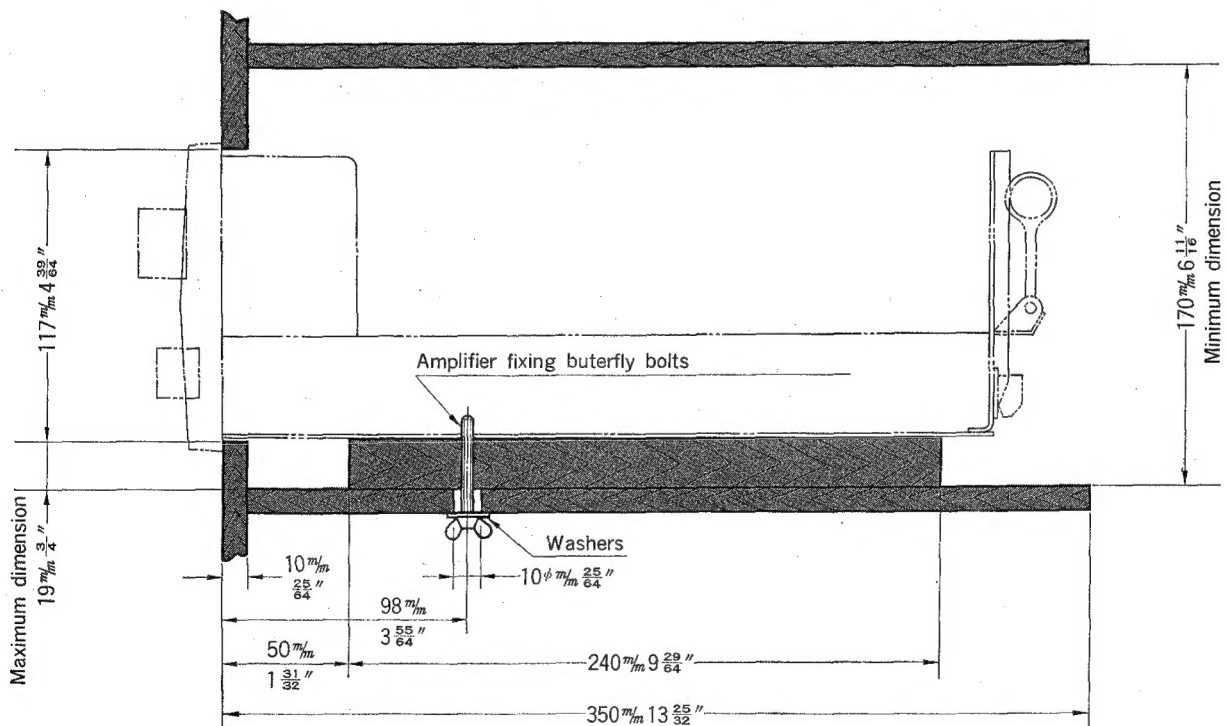
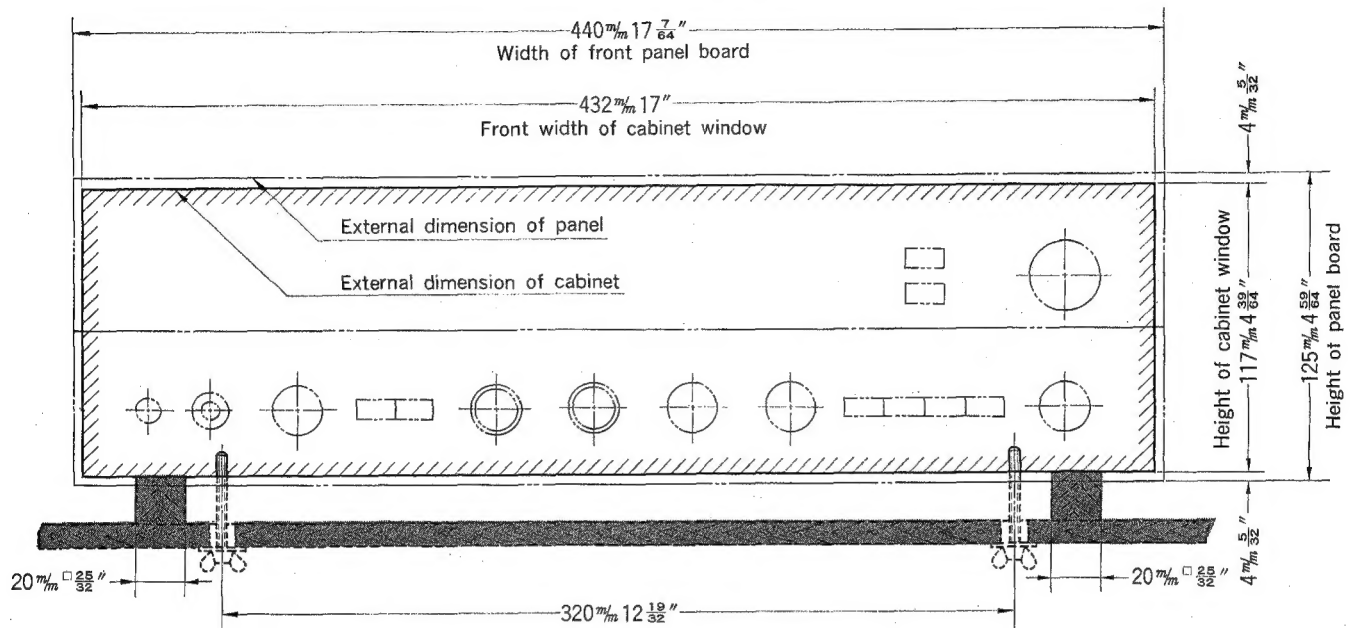
CUSTOM MOUNTING

How to install the amplifier in a wooden cabinet

1. Make a cabinet cutout of 432mm or 17" in width and 117mm or $4\frac{39}{64}$ " in height.
2. Place two square pieces of wood ($20 \times 20 \times 240$ mm or $\frac{25}{32} \times \frac{25}{32} \times 9\frac{29}{64}$ ") for supporting the amplifier in the bottom board of the cabinet.
3. Cut two holes for attachment bolts in the bottom board of the cabinet.
4. Remove the amplifier from the wood case (Refer to the section entitled "DISASSEMBLY PROCEDURE").
5. Place the amplifier in position through the cabinet cutout.
6. Make sure the amplifier is in position, then put the washers in butterfly bolts (4×40 mm) and fix the amplifier to the cabinet with the butterfly bolts.

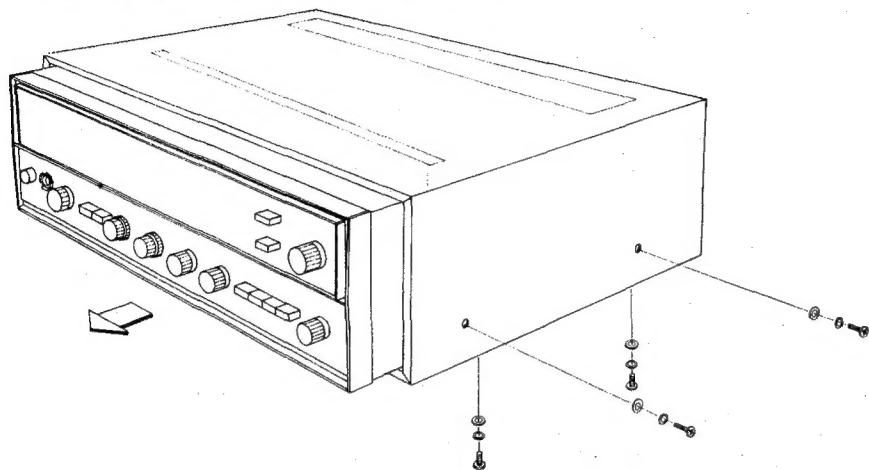
Note: When the amplifier is built into the custom cabinet, the wood case assembly including screws and washers is not used. Retain it for future use.



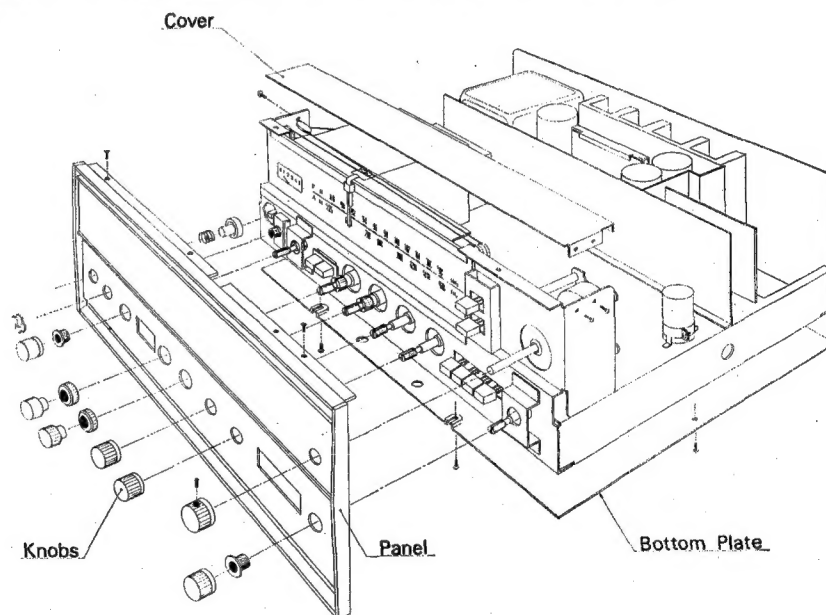


DISASSEMBLY PROCEDURE

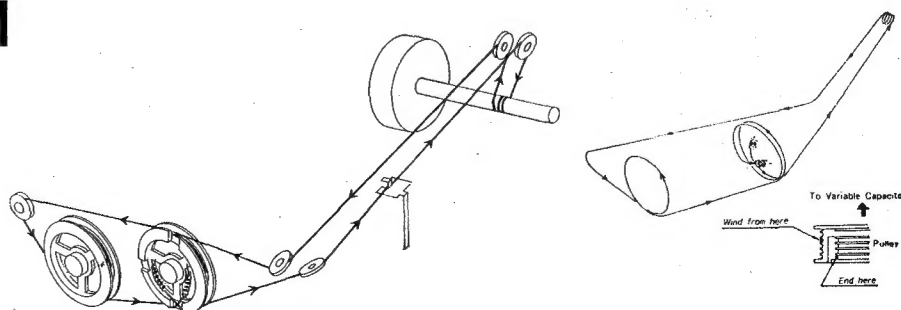
REMOVING THE WOOD CASE



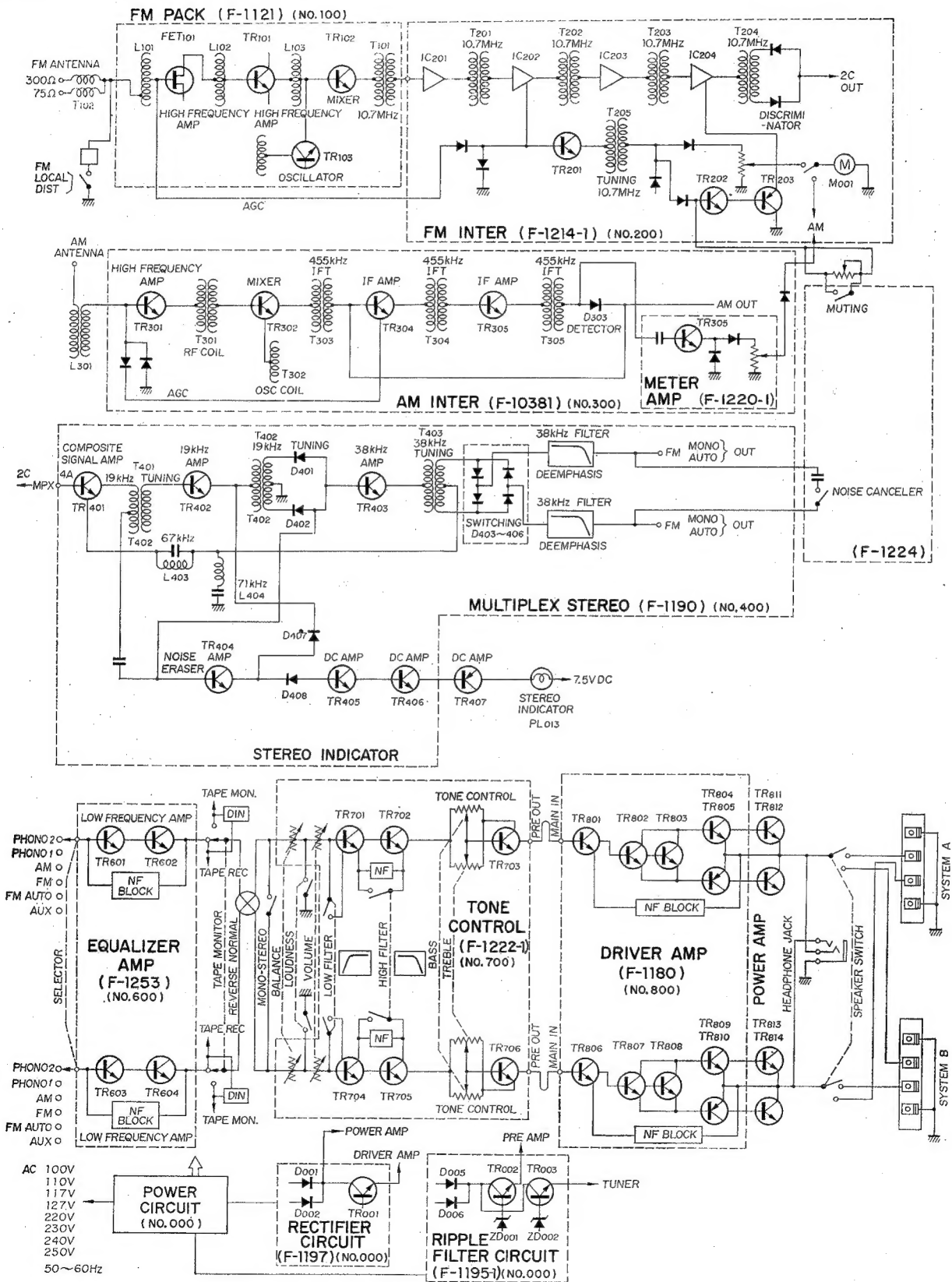
REMOVING THE FRONT PANEL AND BOTTOM PLATE



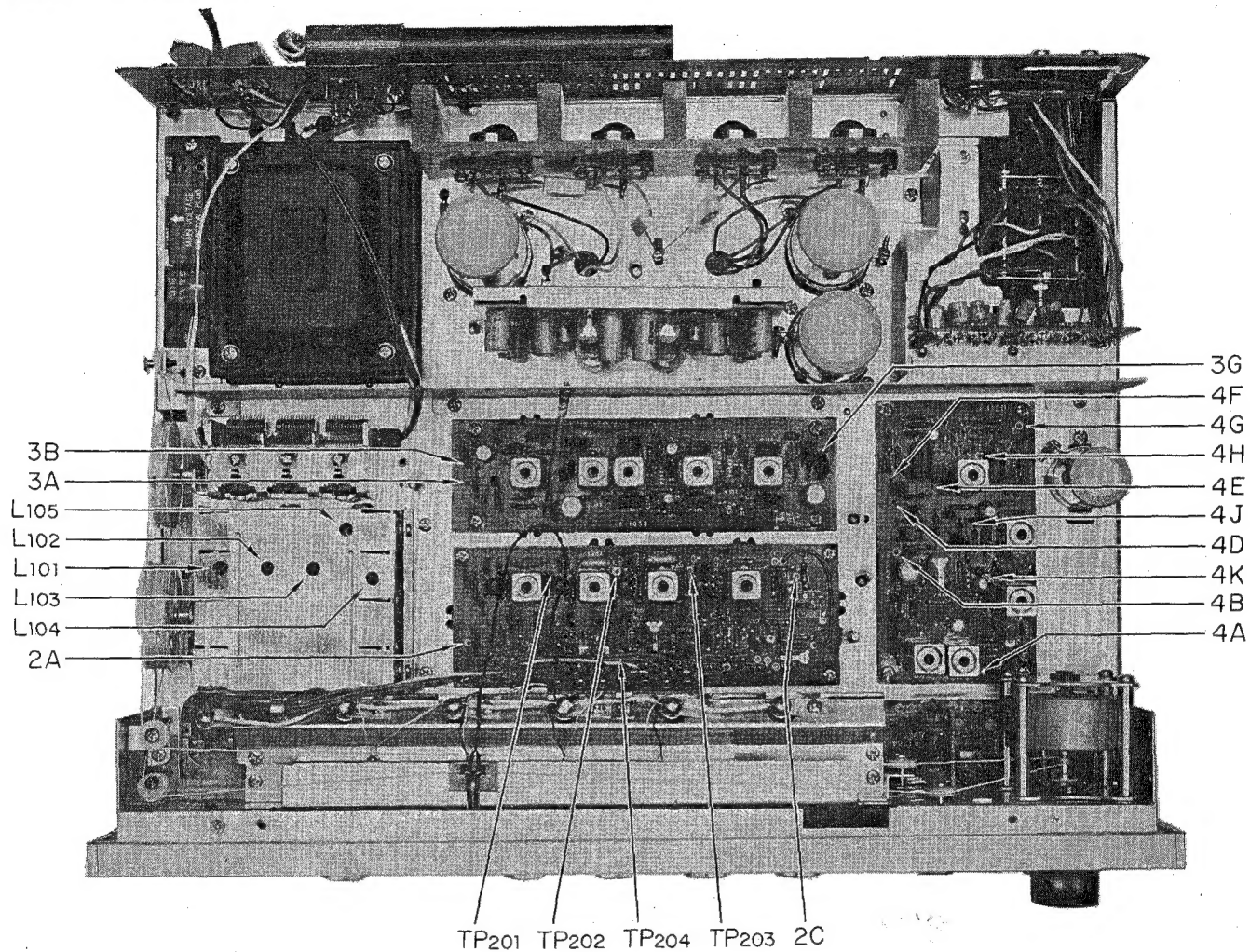
DIAL MECHANISM

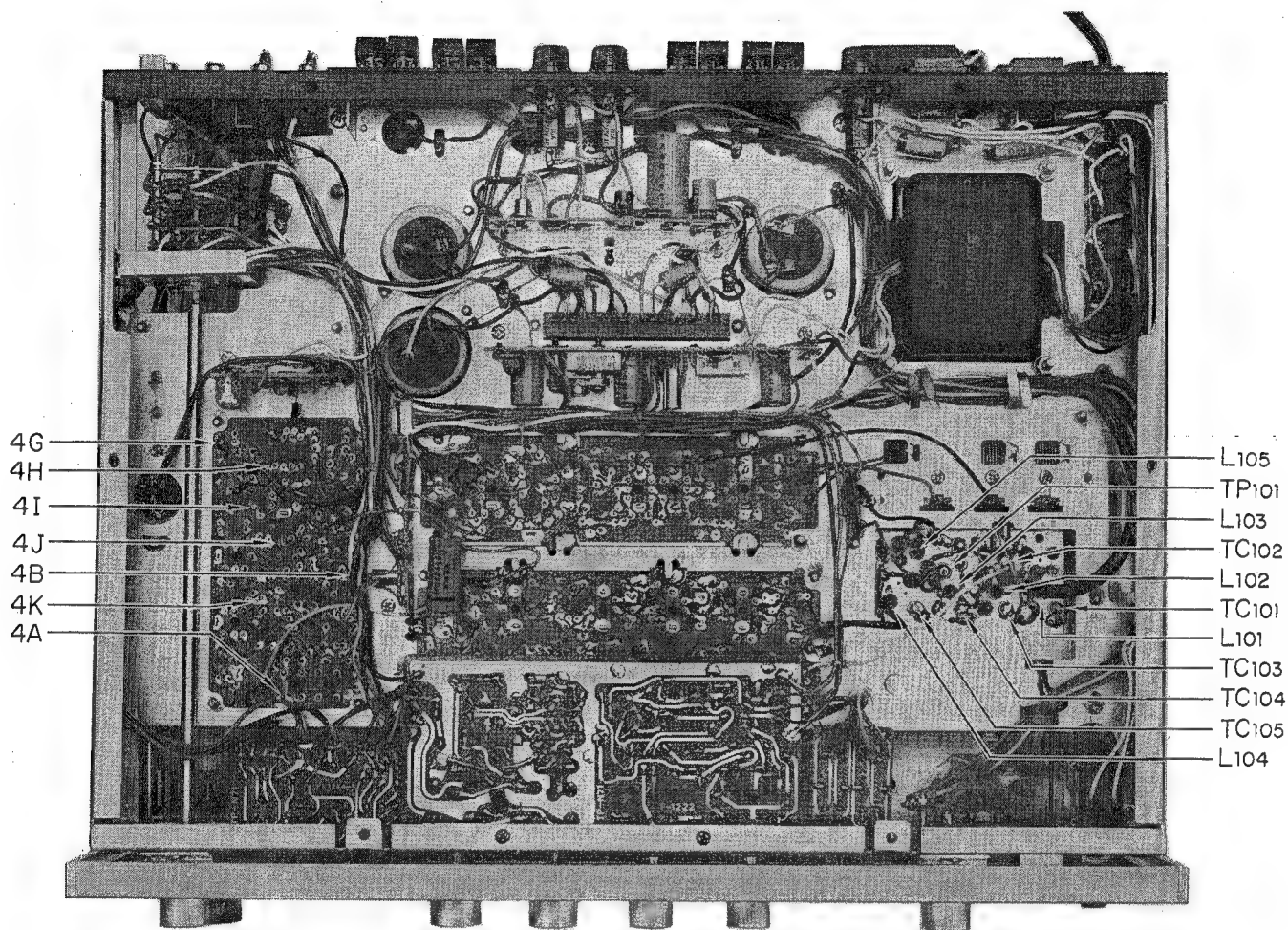


BLOCK DIAGRAM



TEST POINTS





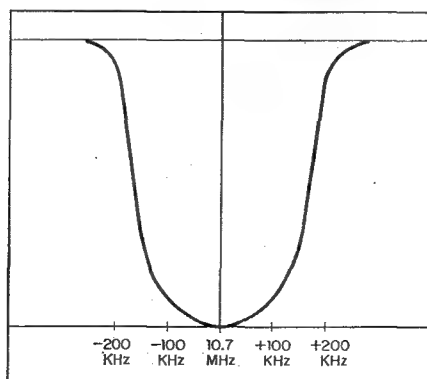
ALIGNMENT

FM ALIGNMENT PROCEDURE

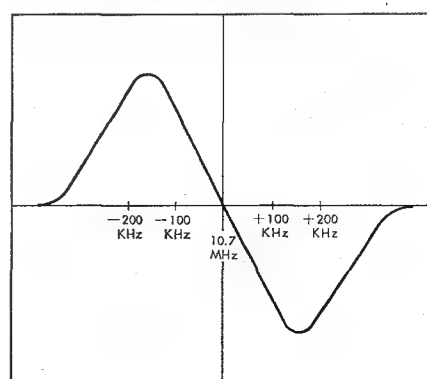
NOTE: To align, set the signal generator level to minimum.
Turn tuning gang fully.
Center carrier wave.
Set pointer at reference mark.

STEP	ALIGN.	GENERATOR	FEED SIGNAL	CONNECT	DIAL SETTING	ADJUST	ADJUST FOR
1.	IF Trans-former	10.7 MHz ± 200 kHz	Sweep signal to TP ₁₀₁ via the 10pF ceramic capacitor	Oscilloscope to TP ₂₀₁ , 202 and 203 via the 10pF ceramic capacitor with probe		Top and bottom sides of T ₂₀₁ , 202, 203	Best I.F. wave form
2.	Discrimi-nator	10.7 MHz ± 200 kHz	Sweep signal to TP ₁₀₁ via the 10pF ceramic capacitor	Oscilloscope to 2C		FM. Discriminator transformer T ₂₀₄ top and bottom sides	S curve
3.	O.S.C	90 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	90 MHz	O.S.C. coil L ₁₀₄	Maximum
4.	O.S.C	106 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	106 MHz	O.S.C. trimmer TC ₁₀₅	Maximum
5.	Reiterate 3 and 4.						
6.	High-frequency Amp. Circuit	90 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	90 MHz	Antenna coil L ₁₀₁ , L ₁₀₂ and L ₁₀₃	Maximum
7.	High-frequency Amp. Circuit	106 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	106 MHz	Trimmer TC ₁₀₁ , TC ₁₀₃ and TC ₁₀₄	Maximum
8.	Reiterate 6 and 7.						

FM IF WAVE FORM



FM DISCRIMINATOR WAVE FORM



FM MULTIPLEX ALIGNMENT PROCEDURE

1. Do not attempt to align the Multiplex Circuit unless the following equipments are available:

a. Multiplex Stereo Generator b. Oscilloscope c. AC. V.T.V.M. d. Audio Oscillator e. FM Signal Generator

STEP	ALIGN.	GENERATOR	FEED SIGNAL TO	TEST EQUIPMENT (S)	ADJUST	ADJUST FOR
1.	67 kHz Trap	67 kHz Audio Signal	TP _{4A} or 2C	V.T.V.M. at 4I	L ₄₀₃	Minimum
2.	71 kHz Trap	71 kHz Audio Signal	TP _{4A} or 2C	V.T.V.M. at 4I	L ₄₀₄	Minimum
3.	19 kHz Transformer	FM Signal Gen. Modulated 30% by STEREO Gen. sub-channel	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at 4K	T ₄₀₁	Maximum
4.	19 kHz Transformer	FM Signal Gen. Modulated 30% by STEREO Gen. sub-channel	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at 4J	T ₄₀₂	Maximum
5.	38 kHz Transformer	FM Signal Gen. Modulated 30% by STEREO Gen. sub-channel	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at 4H	T ₄₀₃	Maximum
6.	38 kHz Transformer and Separation VR	FM Signal Gen. Modulated 30% by STEREO Signal Gen, channel-L	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at output load, (channel-R)	T ₄₀₂ or T ₄₀₃ within ¼ turn and Separation VR(VR ₆₀₁)	Minimum, (Channel-R)

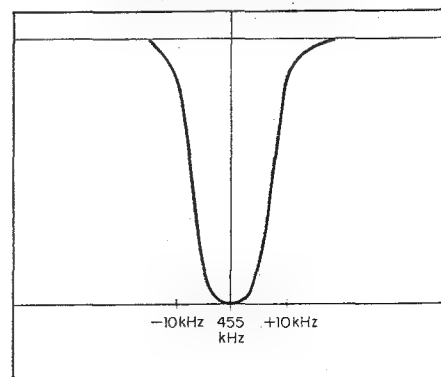
ALIGNMENT

AM ALIGNMENT PROCEDURE

NOTE: To align, set the signal generator level to minimum.

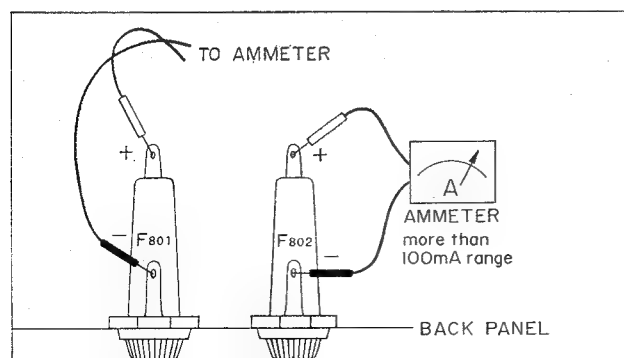
STEP	ALIGN.	GENERATOR	FEED SIGNAL TO	TEST EQUIPMENTS	DIAL SETTING	ADJUST	ADJUST FOR
1.	I.F. Transformer	455 kHz ± 30 kHz Sweep-generator	Antenna terminals	Oscilloscope and V.T.V.M. at 3G		Top and bottom sides from the 1st I.F.T. (T_{303}) to the 3rd I.F.T. ($_{305}$)	Best I.F. wave form
2.	O.S.C.	AM-generator 535 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	535 kHz	O.S.C. Coil T_{302}	Maximum
3.	O.S.C.	AM-generator 1600 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	1600 kHz	O.S.C. Trimmer TC_{303}	Maximum
4.	Reiterate 2 and 3						
5.	RF amp.	AM-generator 600 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	600 kHz	RF transformer T_{301}	Maximum
6.	Antenna circuit	AM-generator 600 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	600 kHz	Ferrite bar Antenna T_{306}	Maximum
7.	RF amp.	AM-generator 1400 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	1400 kHz	RF Trimmer TC_{302}	Maximum
8.	Antenna circuit	AM-generator 1400 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	1400 kHz	Antenna circuit Trimmer TC_{301}	Maximum
9.	Reiterate 5. 6. 7. 8.						

AM IF WAVE FORM



1. CURRENT ADJUSTMENT

STEP	SETTING OF AMMETER (TESTER)	WHAT TO DO	NOTE
1.		Remove F_{801} and F_{802}	Use an ammeter having 100 or 50mA range.
2.		Set VR_{802} and VR_{804} to minimum.	
3.		Set VR_{702} and VR_{706} (VOLUME) to minimum.	
4.		Push the POWER switch ON.	Be sure to switch on 1st and then connect the ammeter.
5.	100mA range.	Connect the ammeter to F_{801} as illustrated in Fig. 1.	
6.		Turn VR_{804} clockwise and adjust current to 15 to 10mA at room temperature of 25°C or less or to 20 to 15mA at 25°C or more.	
7.	100mA range.	Push the POWER switch OFF and attach F_{801} in place.	
8.		Push the POWER switch ON and connect the ammeter to F_{802} as illustrated in Fig. 1.	
9.		Turn VR_{802} clockwise and adjust current to 15 to 10mA at 25°C or less or to 20 to 15mA at 25°C or more.	
10.		Attach F_{802} in place.	



(Fig. 1) QUICK-ACTING FUSE HOLDER

2. OUTPUT ADJUSTMENT

STEP	WHAT TO DO	NOTE
1.	Adjust the volume control to minimum.	The oscillator used should have the oscillation frequency of 20 to 20,000Hz and the output voltage of more than 200mV.
2.	Set an oscillator to 1,000Hz and connect it to the LEFT AUX input.	
3.	Set the SELECTOR switch to AUX.	
		Set other controls and switches as follows: BALANCE to CENTER TAPE MON. to OFF MODE to STEREO TONE to CENTER Others to OFF
4.	Connect a 8- or 16-ohm load resistor having capacitor of more than 50 watts to the LEFT SPEAKER output.	
5.	Connect an oscilloscope to the SPEAKER terminal.	
6.	Push the POWER switch on and advance the volume little by little. Check the output at the terminal by means of the oscilloscope.	
7.	Adjust VR_{801} so that the fronts of sine wave are clipped simultaneously	
8.	Adjust the right channel as above. In Step 7, adjust VR_{803} .	

PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

F-1222-1 <TONE CONTROL BLOCK>

W	X	Y	Z
R701	1k Ω	0101102	2C
R702	47k Ω	0101473	1D
R703	68k Ω	0101683	1D
R704	100k Ω	0101104	1D
R705	1k Ω	0101102	1C, D
R706	270k Ω	0101274	1C, D
R707	3.9k Ω	0101392	1C, D
R708	8.2k Ω	0101822	1C
R709	2.7k Ω	0101272	1C
R710	6.8k Ω	0101682	2B
R711	6.8k Ω	0101682	2B
R712	10k Ω	0101103	1, 2 B
R713	10k Ω	0101103	1A
R714	22k Ω	0101223	1A
R715	150k Ω	0101154	2A
R716	150k Ω	0101154	1B
R717	390k Ω	0101394	1B
R718	560 Ω	0101561	1A
R719	5.6k Ω	0101562	1A
R720	100k Ω	0101104	1A
R721	1k Ω	0101102	2D
R722	47k Ω	0101473	1D
R723	68k Ω	0101683	2C, D
R724	100k Ω	0101104	1D
R725	1k Ω	0101102	1C
R726	270k Ω	0101274	2C
R727	3.9k Ω	0101392	1C, D
R728	8.2k Ω	0101822	1C
R729	2.7k Ω	0101272	1C
R730	6.8k Ω	0101682	2B
R731	6.8k Ω	0101682	2B
R732	10k Ω	0101103	2A, B
R733	10k Ω	0101103	2A
R734	22k Ω	0101223	1A
R735	150k Ω	0101154	2A
R736	150k Ω	0101154	2B, C
R737	390k Ω	0101394	1B
R738	560 Ω	0101561	1B
R739	5.6k Ω	0101562	1B
R740	100k Ω	0101104	1A
C701	0.01 μ F	0601107	2C
C702	0.22 μ F	0601228	1, 2D
C703	220 μ F	0513221	1, 2D
C704	33 μ F	0510330	1C
C705	120 pF	0660121	1C
C706	33 μ F	0512330	1C
C707	1 μ F	0515109	1C
C708	0.015 μ F	0601157	1C
C709	0.0015 μ F	0601156	2B
C710	0.04 μ F	0601407	2A
C711	0.04 μ F	0601407	2A
C712	10 μ F	0515100	1B
C713	100 pF	0660101	1B
C714	47 μ F	0510470	1A
C715	1 μ F	0515109	1A
C716	0.01 μ F	0601107	2D

W	X	Y	Z
C717	0.22 μ F $\pm 10\%$ 50 V MC.	0601228	2D
C718	33 μ F 6.3 V EC.	0510330	1, 2C
C719	120 pF $\pm 10\%$ 50 V CC.	0660121	1C
C720	33 μ F 16 V EC.	0512330	1C
C721	1 μ F 50 V EC.	0515109	1, 2C
C722	0.015 μ F	0601157	1C
C723	0.0015 μ F	0601156	2B
C724	0.04 μ F	0601408	2A
C725	0.04 μ F	0601408	2A
C726	10 μ F 50 V EC.	0515100	1, 2B
C727	100 pF $\pm 10\%$ 50 V CC.	0660101	1B
C728	47 μ F 6.3 V EC.	0510470	1, 2B
C729	1 μ F 50 V EC.	0515109	1A
VR701	250k Ω M, N Balance Control	1010400	2D
VR705		1010400	2D
VR702		1010200	2C
VR706	250k Ω B Volume Control	1010200	2C
VR703	100k Ω B Treble Control	1020040	2B
VR707		1020040	2B
VR704	100k Ω B Bass Control	1010040	2A
VR708		1010040	2A
TR701	2SC458 LG(C)	0305311	1D
TR702	2SC458 LG(B)	0305310	1C
TR703	2SC458 LG(C)	0305311	1A
TR704		0305311	1D
TR705	2SC458 LG(B)	0305310	1C
TR706	2SC458 LG(C)	0305311	1B

Abbreviations

CR: Carbon Resistor
SR: Solid Resistor
CeR: Cement Resistor
MC: Mylar Capacitor
EC: Electrolytic Capacitor
AEC: Aluminium Electrolytic Capacitor
MIC: Mica Capacitor
OC: Oil Capacitor
SC: Styrol Capacitor
CC: Ceramic Capacitor
TC: Tantalum Capacitor

PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

F-1253 <EQUALIZER AMP. BLOCK>

W	X	Y	Z
R601	1k Ω	0101102	1 B
R602	680k Ω	0101684	1 B
R603	4.7k Ω	0101472	1 A
R604	100k Ω	0101104	1 B
R605	1.8k Ω	0101182	1 B
R606	470 Ω	0101471	1 B
R607	390k Ω	0101394	1 B
R608	6.8k Ω	0101682	1 A
R609	220 Ω	0101221	1 A
R610	680 Ω	0101681	1 A
R611	12k Ω	0101123	1 A
R612	100 Ω	0101101	1 A
R615	25k Ω	0101253	1 A
R616	390k Ω	0101394	1 A
R617	3.9k Ω	0101392	1 A
R618	1k Ω	0101102	2 B
R619	680k Ω	0101684	2 B
R620	4.7k Ω	0101472	2 A
R621	100k Ω	0101104	2 B
R622	1.8k Ω	0101182	2 B
R623	470 Ω	0101471	2 B
R624	390k Ω	0101394	2 B
R625	6.8k Ω	0101682	2 A
R626	220 Ω	0101221	2 A
R627	680 Ω	0101681	2 A
R628	12k Ω	0101123	2 A
R629	100 Ω	0101101	2 A
R632	25k Ω	0101253	2 A
R633	390k Ω	0101394	2 A
R634	3.9k Ω	0101392	2 A
R644	100 Ω	0101101	2 B
C601	1.5 μ F 16 V TC.	0572159	1 B
C602	150 pF $\pm 10\%$ 50 V CC.	0660151	1 B
C603	33 μ F 6.3 V EC.	0510330	1 B
C604	33 μ F 6.3 V EC.	0510330	1 B
C605	150 pF $\pm 10\%$ 50 V CC.	0660151	1 B
C606	47 μ F 6.3 V EC.	0510470	1 B
C607	10 μ F 25 V EC.	0513100	1 A
C609	0.01 μ F $\pm 10\%$ 50 V MC.	0601107	1 A
C610	0.003 μ F $\pm 10\%$ 50 V MC.	0601306	1 A
C611	1.5 μ F 16 V TC.	0572159	2 B
C612	150 pF $\pm 10\%$ 50 V CC.	0660151	2 B
C613	33 μ F 6.3 V EC.	0510330	2 B
C614	33 μ F 6.3 V EC.	0510330	2 B
C615	150 pF $\pm 10\%$ 50 V CC.	0660151	2 B
C616	47 μ F 6.3 V EC.	0510470	2 B
C617	10 μ F 25 V EC.	0513100	2 B
C619	0.01 μ F $\pm 10\%$ 50 V MC.	0601107	2 A
C620	0.003 μ F $\pm 10\%$ 50 V MC.	0601306	2 A
C621	0.002 μ F $\begin{smallmatrix} +80\% \\ -20\% \end{smallmatrix}$ 25 V CC.	0659002	2 B
C626	100 μ F 6.3 V EC.	0510101	1 B
VR601	3k Ω B Separation Adjustor	1030660	1, 2 B

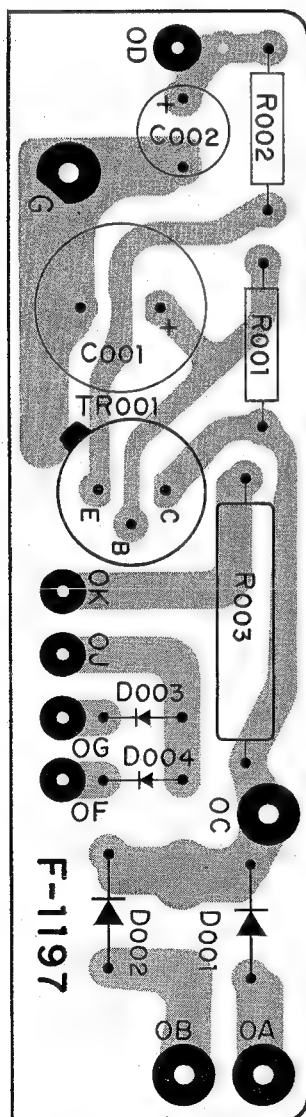
W	X	Y	Z
TR601	2SC871 R(E,F)	0305474, 5	1 B
TR602		0305474, 5	1 B
TR603		0305474, 5	2 B
TR604		0305474, 5	2 B

PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

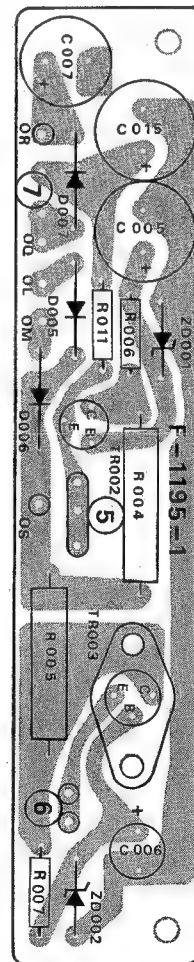
F-1197 <RECTIFIER BLOCK>

W	X	Y	Z
R001 R002	$12k\Omega$ 6.8Ω } $\pm 10\%$ $\frac{1}{2}W$ SR.	0111123 0111689	
C001 C002	$200\mu F$ 75V EC. $4.7\mu F$ 160V EC.	0519301 0518479	
D001 D002	SA-2Z	0310420 0310420	
TR001		0305580, 1, 2	



F-1195-1 <RIPPLE FILTER BLOCK>

W	X	Y	Z
R004 R005 R006 R007 R011	68Ω 180Ω $3.9k\Omega$ $1.5k\Omega$ 220Ω } $\pm 10\%$ 3W CeR. $\pm 10\%$ $\frac{1}{4}W$ CR.	0153680 0153181 0101392 0101152 0101221	
C005 C006 C007 C015	$220\mu F$ 25 V EC. $330\mu F$ 16 V EC. $330\mu F$ 10 V EC. $220\mu F$ 25 V EC.	0513221 0512331 0511331 0513221	
D005 D006 D007	10D-2 10D-1	0310350 0310350 0310340	
ZD001 ZD002	ZB-1-25 Zener Diode ZB-1-14 Zener Diode	0310710 0310691	
TR002 TR003	2SC971 2SD205	0305531 0308130	



F-1224 <NOISE CANCELER AND MUTING BLOCK>

W	X	Y	Z
R433	3.3M Ω \pm 10% $\frac{1}{2}$ W SR.	0111335	
C430	330pF \pm 10% 50 V MiC.	0641331	
S6, S7		1130131	

F-1223 <HIGH-LOW FILTER BLOCK>

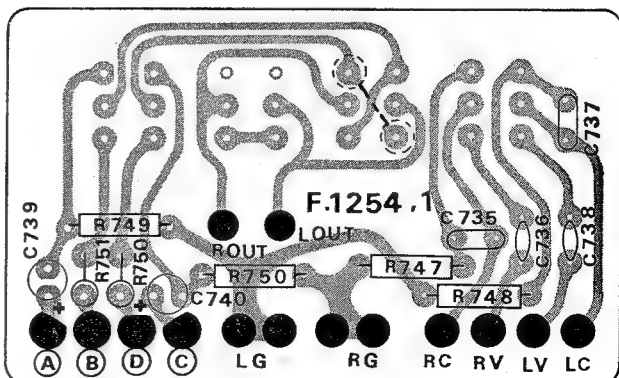
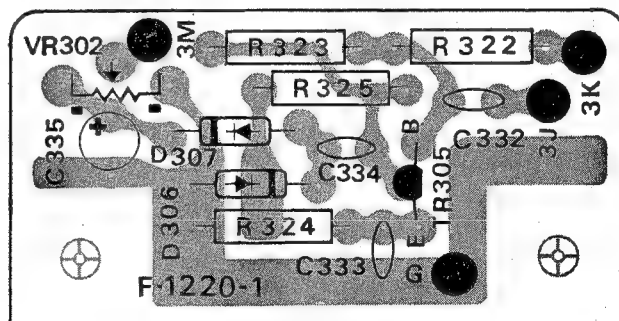
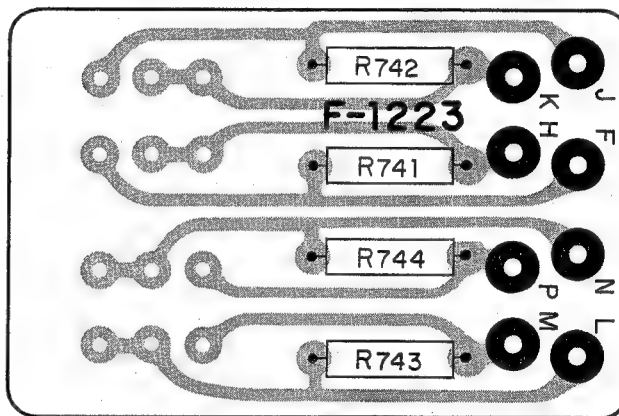
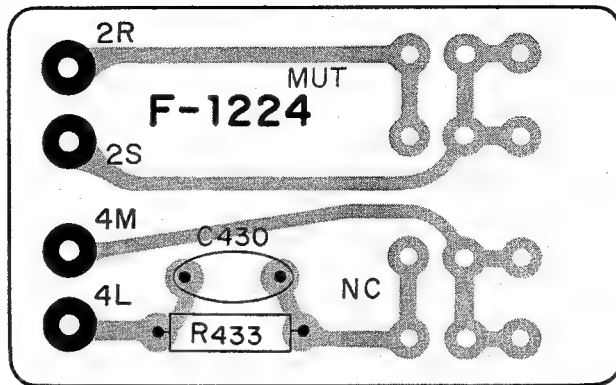
W	X	Y	Z
R741	1M Ω	0101105	
R742	1M Ω	0101105	
R743	1M Ω	0101105	
R744	1M Ω	0101105	
	$\pm 10\% \frac{1}{4}W$ CR.		
S8, S9		1130070	

F-1220-1 <AM METER BLOCK>

W	X	Y	Z
R322	68k Ω	0101683	
R323	560k Ω	0101564	
R324	2.2k Ω	0101222	
R325	12k Ω	0101123	
	$\pm 10\% \frac{1}{4}W$ CR.		
C332	0.01 μF	0659004	
C333	0.001 μF	0659001	
C334	0.01 μF	0659004	
C335	4.7 μF	0513479	
	25 V CC.		
	25 V EC.		
VR302	50k Ω B AM Meter Adjustor	1030490	
D306	} 1N60	0310330	
D307		0310330	
TR305	2SC460(C)	0305350	

F-1254,1 <ACCESSORIES BLOCK>

W	X	Y	Z
R747	27kΩ	0101273	
R748	27kΩ	0101273	
R749	100kΩ	0101104	
R750	100kΩ	0101104	
R751	12kΩ	0101123	
R752	12kΩ	0101123	
	} ±10% 1/4 W CR.		
C735	0.02μF	±10% 50 V MC.	0601207
C736	150 pF	±10% 50 V MiC.	0641151
C737	0.02μF	±10% 50 V MC.	0601207
C738	150 pF	±10% 50 V MiC.	0641151
C739	0.47μF	} ±20% 25 V AEC.	0563478
C740	0.47μF		0563478
S2,3,4,5			1130140



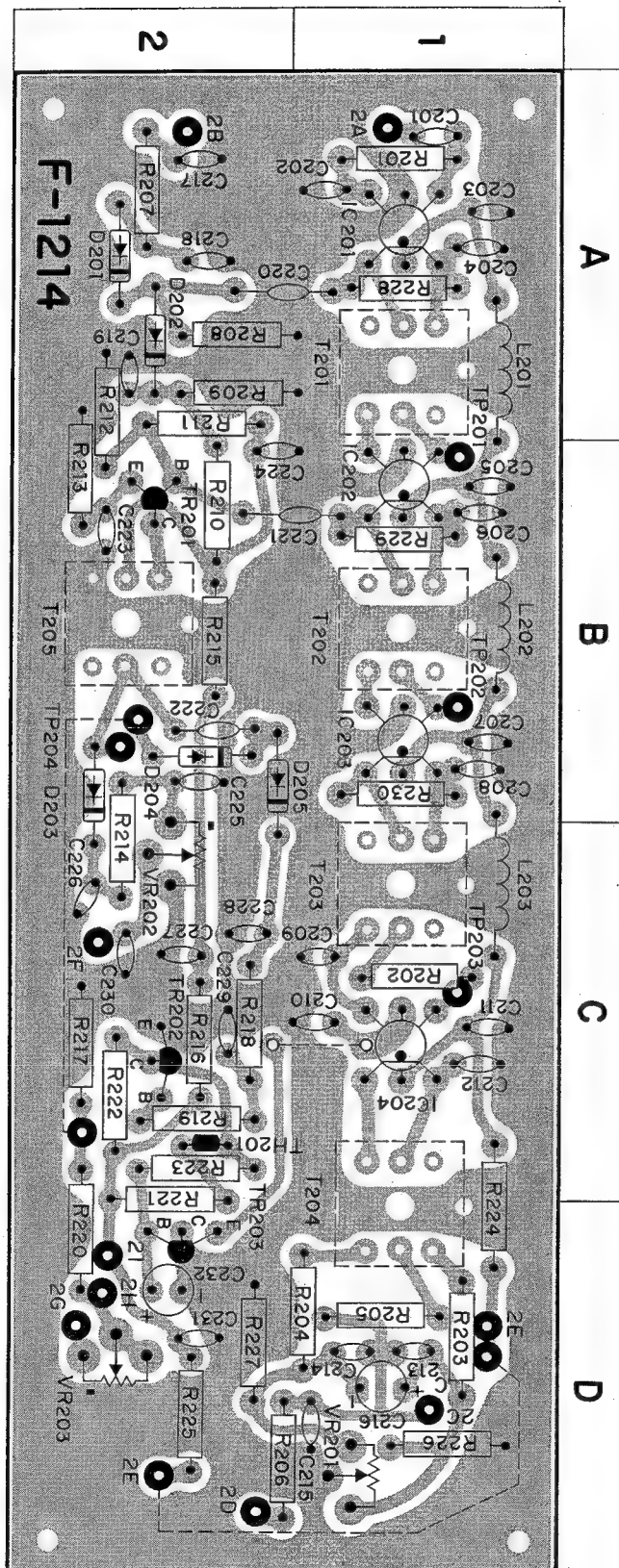
PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

F-1214-1 <FM IF BLOCK>

W	X	Y	Z
R201	1.5k Ω	0101152	1 A
R202	68 Ω	0101680	1 C
R203	1k Ω	0101102	1 D
R204	1k Ω	0101102	1 D
R205	56 Ω	0101560	1 D
R206	22k Ω	0101223	2 D
R207	100k Ω	0101104	2 A
R208	220k Ω	0101224	2 A
R209	680 Ω	0101681	2 A
R210	68k Ω	0101683	2 B
R211	22k Ω	0101223	2 A
R212	10k Ω	0101103	2 A
R213	1k Ω	0101102	2 B
R214	2.2k Ω	0101222	2 C
R215	22 Ω	0101220	2 B
R216	22 Ω	0101220	2 C
R217	10k Ω	0101103	2 C
R218	1k Ω	0101102	2 C
R219	68k Ω	0101683	2 C
R220	100k Ω	0101104	2 D
R222	18k Ω	0101183	2 D
R223	2.7k Ω	0101272	2 C
R224	56 Ω	0101560	2 C
R225	820 Ω	0101821	2 D
R226	10k Ω	0101103	1 D
R227	10k Ω	0101103	2 D
R228	15k Ω	0101153	1 A
R229	15k Ω	0101153	1 B
R230	15k Ω	0101153	2 B
C201	0.01 μ F	0659004	1 A
C202	0.02 μ F	0659005	1 A
C203	0.02 μ F	0659005	1 A
C204	0.02 μ F	0659005	1 A
C205	0.02 μ F	0659005	1 B
C206	0.02 μ F	0659005	1 B
C207	0.02 μ F	0659005	1 B
C208	0.02 μ F	0659005	1 B
C209	0.02 μ F	0659005	1 C
C210	0.02 μ F	0659005	1 C
C211	0.02 μ F	0659005	1 C
C212	0.02 μ F	0659005	1 C
C213	220 pF	0660221	1 D
C214	220 pF	0660221	1 D
C215	47 pF	0660470	1 D
C216	10 μ F	0511100	1 D
C217	0.05 μ F	0659007	2 A
C218	0.02 μ F	0659005	2 A
C219	0.02 μ F	0659005	2 A
C220	3.3 pF	0660339	2 A
C221	3.3 pF	0660339	2 A
C222	3.3 pF	0660339	2 B
C223	0.02 μ F	0659005	2 B

W	X	Y	Z
C224	0.02 μ F	0659005	2 B
C225	0.02 μ F	0659005	2 B
C226	0.02 μ F	0659005	2 C
C227	0.02 μ F	0659005	2 C
C228	330 pF	0660331	2 C
C229	330 pF	0660331	2 C
C230	0.05 μ F	0659007	2 C
C231	0.02 μ F	0659005	2 D
C232	1 μ F	0515109	2 D
VR202	50k Ω B Tuning Meter Adjustor	1030200	2 C
VR203	100k Ω B Muting Adjustor	1030340	2 D
T201	FM IFT 10.7MHz	4235470	1 A
T202		4235480	1 B
T203		4235490	1 C
T204	FM Detector 10.7MHz	4235180	1 D
T205	FM Meter Transformer	4235290	2 B
L201	3.5 μ H Choke Coil	4290011	1 A
L202		4290011	1 B
L203		4290011	1 C
IC201	PA-7703E	0360030	1 A
IC202		0360030	1 B
IC203		0360030	1 B
IC204		0360030	1 C
TR201	2SC 380 (O) or 2SC460 (B,C)	0305330	2 B
TR202	2SC 828 (T)	0305270	2 C
TR203	2SA 564 (P,Q)	0300090, 1	2 D
D201	IN60	0310330	2 A
D202		0310330	2 A
D203		0310330	2 B
D204		0310330	2 B
D205		0310330	2 B



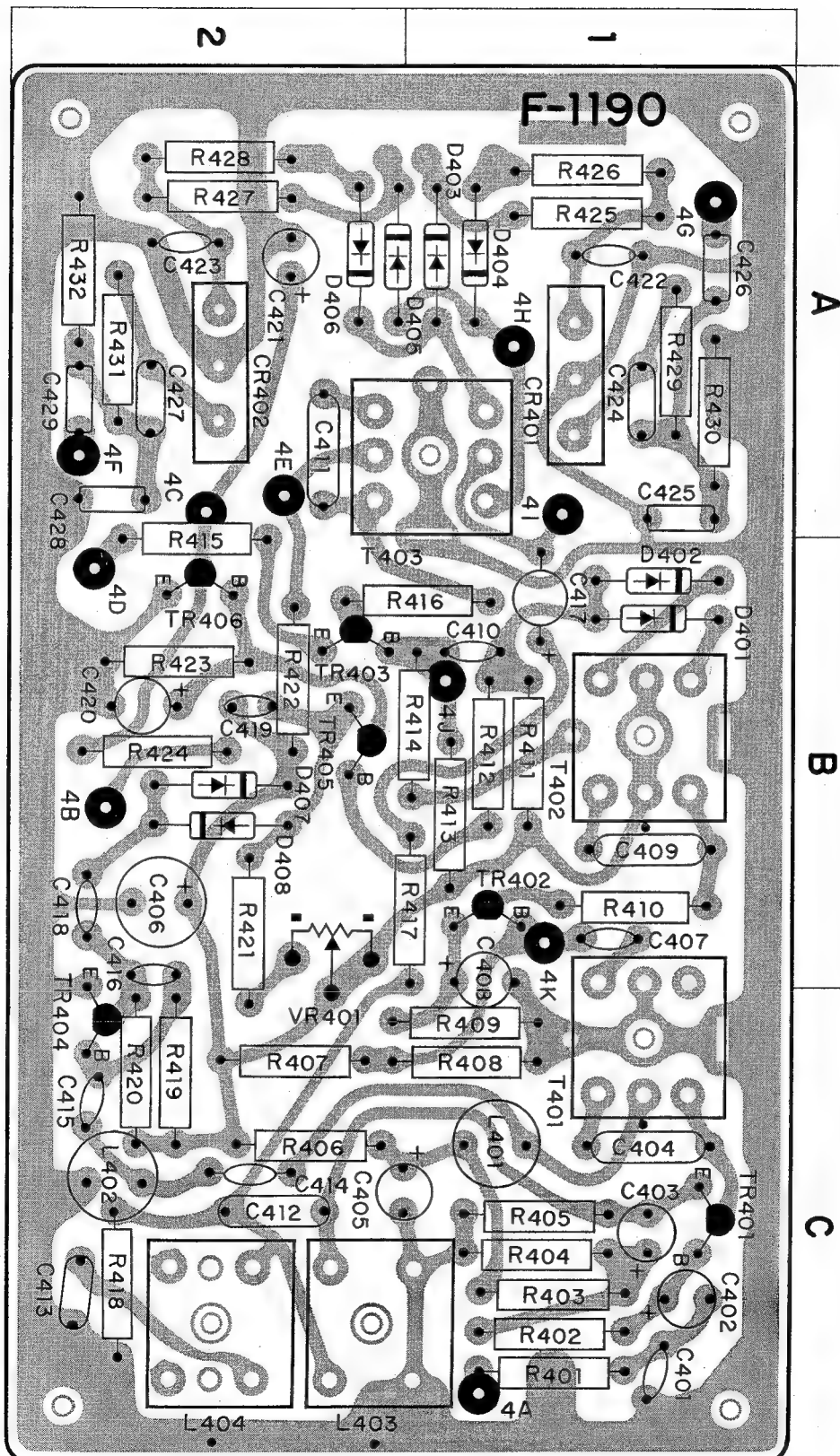
PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

F-1190 <MULTIPLEX BLOCK>

W	X	Y	Z
R401	1k Ω	0101102	1 C
R402	100k Ω	0101104	1 C
R403	100k Ω	0101104	1 C
R404	22k Ω	0101223	1 C
R405	680 Ω	0101681	1 C
R406	100 Ω	0101101	2 C
R407	47k Ω	0101473	2 C
R408	22k Ω	0101223	1 C
R409	2.2k Ω	0101222	1 C
R410	1k Ω	0101102	1 B
R411	10k Ω	0101103	1 B
R412	10k Ω	0101103	1 B
R413	100k Ω	0101104	1 B
R414	18k Ω	0101183	1 B
R415	5.6k Ω	0101562	2 A
R416	470 Ω	0101471	1 B
R417	2.2k Ω	0101222	1 B
R418	10k Ω	0101103	2 C
R419	1.2M Ω	0110125	2 C
R420	4.7k Ω	0101472	2 C
R421	3.3k Ω	0101332	2 B
R422	47 Ω	0101470	2 B
R423	1.8k Ω	0101182	2 B
R424	6.8k Ω	0101682	2 B
R425	22k Ω	0101223	1 A
R426	22k Ω	0101223	1 A
R427	22k Ω	0101223	2 A
R428	22k Ω	0101223	2 A
R429	100k Ω	0101104	1 A
R430	220k Ω	0101224	1 A
R431	100k Ω	0101104	2 A
R432	220k Ω	0101224	2 A
C401	100pF $\pm 10\%$ 50 V CC.	0660101	1 C
C402	1 μ F 50 V EC.	0515109	1 C
C403	33 μ F 6.3 V EC.	0510330	1 C
C404	5000pF $\pm 5\%$ 50 V SC.	0620502	1 C
C405	10 μ F 25 V EC.	0513100	1 C
C406	47 μ F 25 V EC.	0513470	2 B
C407	0.02 μ F $\pm 10\%$ 50 V MC.	0601207	1 B
C408	1 μ F 50 V EC.	0515109	1 B
C409	6800pF $\pm 5\%$ 50 V SC.	0620682	1 B
C410	0.02 μ F $\pm 10\%$ 50 V MC.	0601207	1 B
C411	1700pF $\pm 5\%$ 50 V SC.	0620172	2 A
C412	1500pF $\pm 5\%$ 50 V SC.	0620152	2 D
C413	220pF	0620221	2 C
C414	330pF	0660331	2 C
C415	330pF $\pm 10\%$ 50 V CC.	0660331	2 C
C416	47pF	0660470	2 B
C417	10 μ F 25 V EC.	0513100	1 B
C418	0.02 μ F $\pm 80\%$ 25 V CC.	0659005	2 B
C419	0.02 μ F $\pm 20\%$ 25 V CC.	0659005	2 B
C420	3.3 μ F 25 V EC.	0513339	2 B
C421	10 μ F 10 V EC.	0511100	2 A
C422	220pF $\pm 10\%$ 50 V CC.	0660221	1 A
C423	220pF $\pm 10\%$ 50 V CC.	0660221	2 A
C424	560pF $\pm 5\%$ 50 V SC.	0620561	1 A

W	X	Y	Z
C425	1000pF $\pm 5\%$ 50 V SC.	0620102	1 A
C426	0.03 μ F $\pm 10\%$ 50 V MC.	0601307	1 A
C427	560pF $\pm 5\%$ 50 V SC.	0620561	2 A
C428	1000pF $\pm 5\%$ 50 V SC.	0620102	2 A
C429	0.03 μ F $\pm 10\%$ 50 V MC.	0601307	2 A
CR401	FP-38A	0800080	1 A
CR402	FP-38A	0800080	2 A
T401	19kHz	4240280	1 C
T402	19kHz	4240290	1 B
T403	38kHz	4240290	1 A
L401	4.7mH	4900030	1 C
L402	4.7mH	4900030	2 C
L403	68kHz	4240260	2 C
L404	71kHz	4240270	2 C
D401	IN34A	0310400	1 B
D402	IN34A	0310400	1 B
D403	IN34A	0310401	1 A
D404	IN34A	0310401	1 A
D405	IN34A	0310401	2 A
D406	IN34A	0310401	2 A
D407	IN34A	0310400	2 B
D408	IN34A	0310400	2 B
TR401	2SC458LG (B, C)	0305310	1 C
TR402	2SC536V ₁ (E ₁ , E ₂)	0305244, 5	1 B
TR403	2SC536V ₁ (E ₁ , E ₂)	0305244, 5	2 B
TR404	2SC536V ₁ (E ₁ , E ₂)	0305244, 5	2 C
TR405	2SA564 (P, Q)	0300090, 1	2 B
TR406	2SC536V ₁ (E ₁ , E ₂)	0305244, 5	2 B



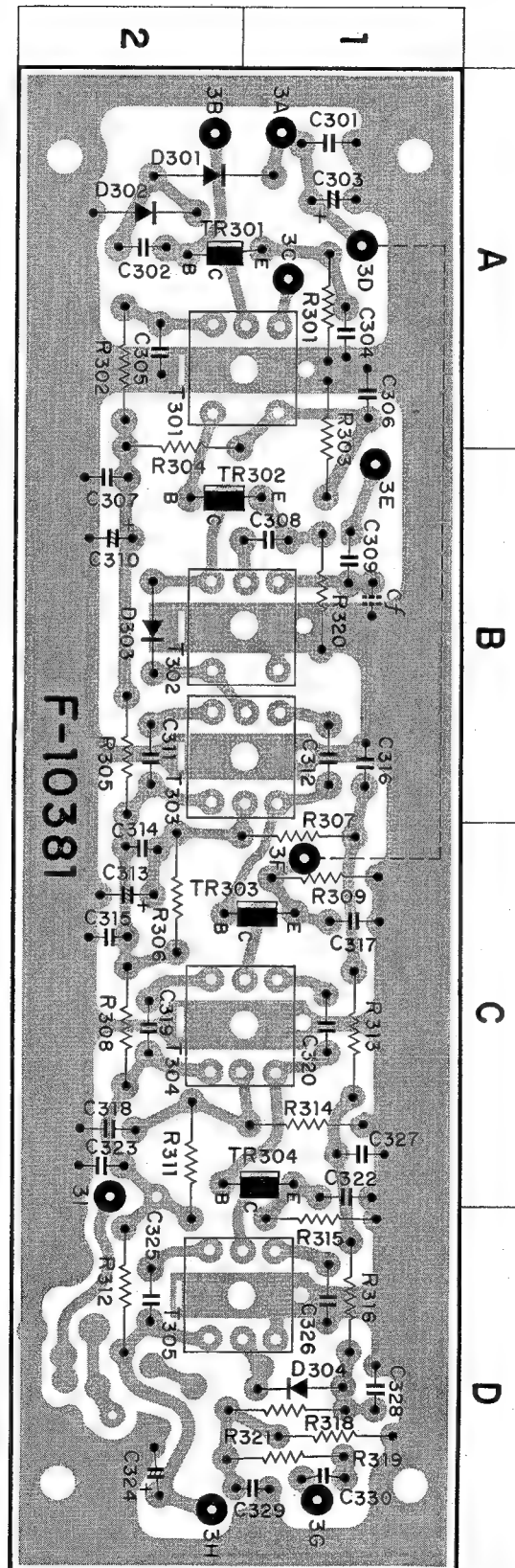
PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

F-10381 <AM IF BLOCK>

W	X	Y	Z
R301	1k Ω	0101102	1 A
R302	100 Ω	0101101	2 A
R303	3.9k Ω	0101392	1 A
R304	33k Ω	0101333	2 B
R305	100 Ω	0101101	2 B
R306	56k Ω	0101563	2 C
R307	22 Ω	0101220	1 B
R308	22 Ω	0101220	2 C
R309	1k Ω	0101102	1 C
R311	10k Ω	0101103	2 C
R312	22 Ω	0101220	2 D
R313	100 Ω	0101101	1 C
R314	6.8k Ω	0101682	1 C
R315	470 Ω	0101471	1 C
R316	8.2k Ω	0101822	1 D
R318	1k Ω	0101102	1 D
R319	120k Ω	0101124	1 D
R320	1k Ω	0101102	1 B
R321	4.7k Ω	0101472	1 D
C301	0.04 μ F	0659006	1 A
C302	0.04 μ F	0659006	2 A
C303	100 μ F	0510101	1 A
C304	0.02 μ F	0659005	1 A
C305	0.04 μ F	0659006	2 A
C306	0.04 μ F	0659006	1 A
C307	0.02 μ F	0659005	2 B
C308	0.01 μ F	0600107	1 B
C309	430 pF	0640431	1 B
C310	100 μ F	0512101	2 B
C311	500 pF	0640501	2 B
C312	500 pF	0640501	2 A
C313	4.7 μ F	0512479	2 C
C314	0.02 μ F	0659005	2 B
C315	0.02 μ F	0659005	2 C
C316	0.04 μ F	0659006	1 B
C317	47 μ F	0510470	1 C
C318	0.02 μ F	0659005	2 C
C319	500 pF	0640501	2 C
C320	500 pF	0640501	1 C
C322	0.04 μ F	0659006	1 C
C323	0.02 μ F	0659005	2 C
C324	220 μ F	0512221	2 D
C325	500 pF	0640501	2 D
C326	500 pF	0640501	1 D
C327	0.02 μ F	0659005	1 C
C328	0.02 μ F	0600207	1 D
C329	0.1 μ F	0600108	1 D
C330	0.04 μ F	0659006	1 D
T301	AM RF	4210050	1, 2 A
T302	AM OSC	4220070	1, 2 B
T303	AM IFT 455kHz	4230190	1, 2 B
T304	AM IFT 455kHz	4230190	1, 2 C
T305		4230180	1, 2 D

W	X	Y	Z
TR301	2SC460(C)	0305351	2 A
TR302	2SC460(B)	0305350	2 B
TR303		0305350	1, 2 C
TR304	2SC460(C)	0305351	1 D
D301	IN60	0310330	2 A
D302		0310330	2 A
D303		0310330	2 B
D304		0310330	1 D



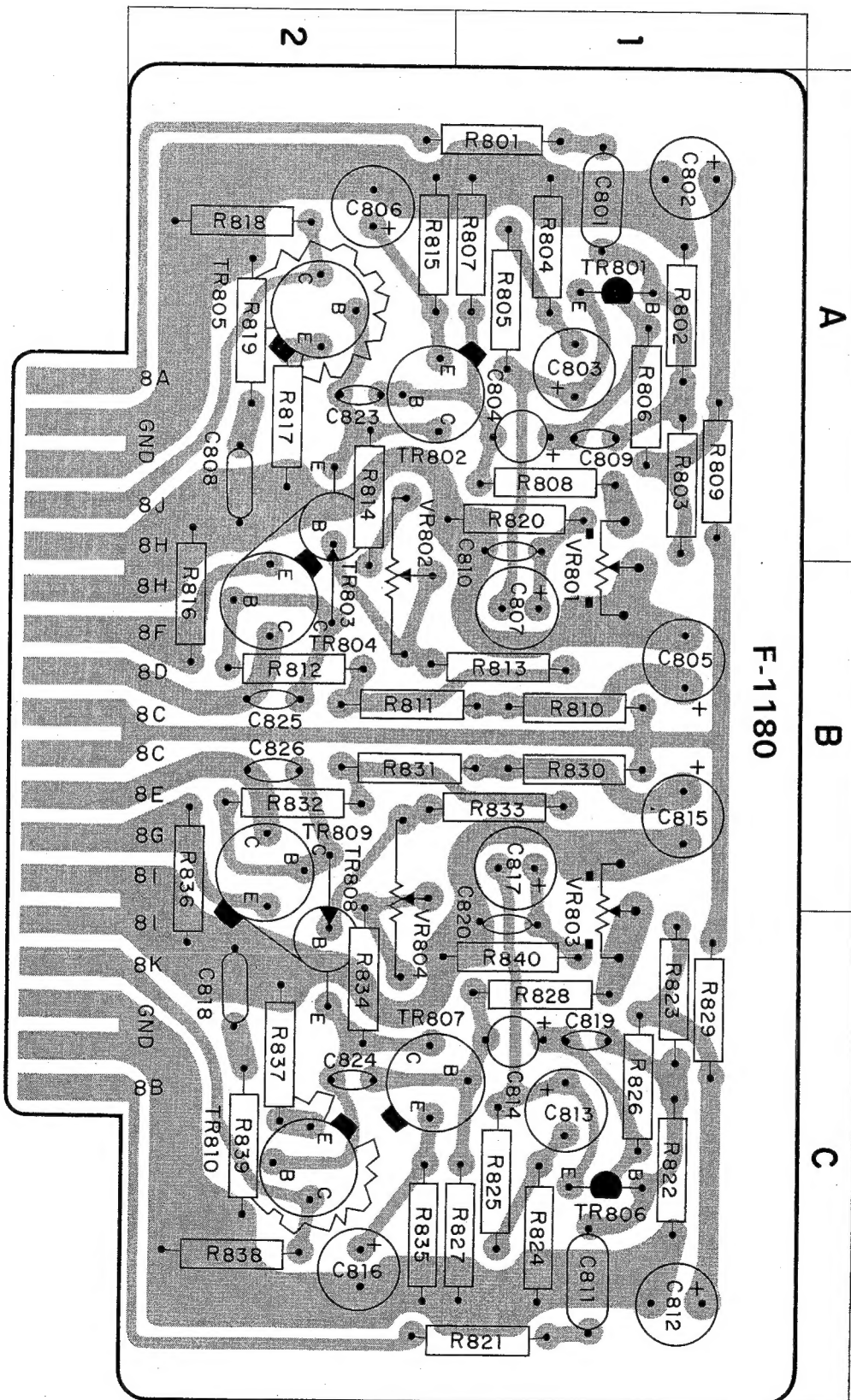
PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

F-1180 <DRIVER AMP. BROCK>

W	X	Y	Z
R801	2.2k Ω	0101222	1 A
R802	150k Ω	0101154	1 A
R803	560k Ω	0101564	1 A
R804	220 Ω	0101221	1 A
R805	3.3k Ω	0101332	1 A
R806	3.3k Ω	0101332	1 A
R807	10k Ω	0101103	1 A
R808	47k Ω	0101473	1 A
R809	56k Ω	0101563	1 A
R810	1.8k Ω	0101182	1 B
R811	3.9k Ω	0101392	2 B
R812	39 Ω	0101390	2 B
R813	3.3k Ω	0101332	1 B
R814	1.5k Ω	0101152	2 A
R815	220 Ω	0101221	2 A
R816	100 Ω	0101101	2 B
R817	4.7 Ω	0101479	2 A
R818	100 Ω	0101101	2 A
R819	10 Ω	0111100	2 A
R820	8.2k Ω	0101822	1 A
R821	2.2k Ω	0101222	1 C
R822	150k Ω	0101154	1 C
R823	560k Ω	0101564	1 C
R824	220 Ω	0101221	1 C
R825	3.3k Ω	0101332	1 C
R826	3.3k Ω	0101332	1 C
R827	10k Ω	0101103	1 C
R828	47k Ω	0101473	1 C
R829	56k Ω	0101563	1 C
R830	1.8k Ω	0101182	1 B
R831	3.9k Ω	0101392	2 B
R832	39 Ω	0101390	2 B
R833	3.3k Ω	0101332	1 B
R834	1.5k Ω	0101152	2 C
R835	220 Ω	0101221	2 C
R836	100 Ω	0101101	2 B
R837	4.7 Ω	0101479	2 C
R838	100 Ω	0101101	2 C
R839	10 Ω	0111100	2 C
R840	8.2k Ω	0101822	1 C
C801	0.22 μ F $\pm 10\%$ 50 V MC.	0601228	1 A
C802	100 μ F 25 V EC.	0513101	1 A
C803	220 μ F 10 V EC.	0511221	1 A
C804	1 μ F } 50 V EC.	0515109	1 A
C805	33 μ F } 50 V EC.	0515330	1 B
C806	100 μ F 10 V EC.	0511101	2 A
C807	10 μ F 50 V EC.	0515100	1 B
C808	0.047 μ F $\pm 10\%$ 50 V MC.	0601477	2 A
C809	47 pF $\pm 10\%$ 50 V CC.	0660470	1 A
C811	0.22 μ F $\pm 10\%$ 50 V MC.	0601228	1 C
C812	100 μ F 25 V EC.	0513101	1 C
C813	220 μ F 10 V EC.	0511221	1 C
C814	1 μ F } 50 V EC.	0515109	1 C
C815	33 μ F } 50 V EC.	0515330	1 B
C816	100 μ F 10 V EC.	0511101	2 C

W	X	Y	Z
C817	10 μ F 50 V EC.	0515100	1 B
C818	0.047 μ F $\pm 10\%$ 50 V MC.	0601477	2 C
C819	47 pF } $\pm 10\%$ 50 V CC.	0660470	1 C
C823	47 pF } $\pm 10\%$ 50 V CC.	0660470	2 A
C824	47 pF } $\pm 10\%$ 50 V CC.	0660470	2 C
C825	330 pF } $\pm 10\%$ 50 V CC.	0660331	2 B
C826	330 pF } $\pm 10\%$ 50 V CC.	0660331	2 B
VR801	200k Ω B AC Balance Adjustor	1030150	1 A, B
VR802	1k Ω B DC Bias Adjustor	1030510	2 A, B
VR803	200k Ω B AC Balance Adjustor	1030150	1 B, C
VR804	1k Ω B DC Bias Adjustor	1030510	2 B, C
TR801	2SC458LG (C)	0305311	1 A
TR802	2SC627 (1, 2)	0305581, 2	2 A
TR803	2SC281 (B)	0305121	2 A, B
TR804	2SC708 (A, B, C)	0305480, 1, 2	2 B
TR805	2SA537 (A, B, C)	0300120, 1, 2	2 A
TR806	2SC458LG (C)	0305311	1 C
TR807	2SC627 (1, 2)	0305581, 2	2 C
TR808	2SC281 (B)	0305121	2 B, C
TR809	2SC708 (A, B, C)	0305480, 1, 2	2 B
TR810	2SA537 (A, B, C)	0300120, 1, 2	2 C



OTHER PARTS AND THEIR POSITION ON CHASSIS

W: Parts No. X: Parts Name Y: Stock No.

W	X	Y
R008	1.2k Ω $\pm 10\%$ $\frac{1}{2}$ W SR.	0111122
R009	150 Ω	0101151
R010	10 Ω	0101100
R012	39 Ω	0101390
R017	220 Ω	0101221
R120	56 Ω	0101560
R121	680 Ω	0101681
R635	68k Ω	0101683
R636	180k Ω	0101184
R637	100k Ω	0101104
R638	22k Ω $\pm 10\%$ $\frac{1}{4}$ W CR.	0101223
R639	15k Ω	0101153
R640	100k Ω	0101104
R641	220k Ω	0101224
R642	100k Ω	0101104
R643	220k Ω	0101224
R645	68k Ω	0101683
R646	180k Ω	0101184
R647	100k Ω	0101104
R648	15k Ω	0101153
R841	0.5 Ω $\pm 10\%$ 2W CeR.	0152508
R842	0.5 Ω	0152508
R843	330 Ω $\pm 10\%$ $\frac{1}{2}$ W SR.	0111331
R844	0.5 Ω $\pm 10\%$ 2W CeR.	0152508
R845	0.5 Ω	0152508
R846	330 Ω $\pm 10\%$ $\frac{1}{2}$ W SR.	0111331
R847	560 Ω $\pm 10\%$ 1W CeR.	0151561
R848	560 Ω	0151561
C003	2200 μ F 80 V EC.	0559821
C004	1000 μ F 50 V EC.	0515102
C008	0.033 μ F	0591337
C009	0.0047 μ F 600V OC.	0591476
C011	0.04 μ F $\pm 80\%$ 25 V CC.	0659006
C012	0.04 μ F -20%	0659006
C013	0.01 μ F 400V OC.	0590107
C014	0.01 μ F	0590107
C017	220 μ F 25 V EC.	0503221
C345	1 μ F 50 V EC.	0515109
C439	0.02 μ F $\pm 100\%$ 50 V CC.	0650203
C622	100pF	0660101
C623	100pF $\pm 10\%$ 50 V CC.	0660101
C624	100pF	0660101
C625	100pF	0660101
C821	2200 μ F 75 V EC.	0559703
C822	2200 μ F	0559703
VR204	1M Ω B Muting Adjustor	1005080
S001	UEH 12CD00	1130160
S1(a~i)	Y-4-9-6	1104120
S10	Y-1-4-4	1101180
S11	SL-13-8-10H6-2-2	1110040
J001	Headphones Jack	2430070
J002	DIN Connector	2430040
TR407	2SB324	0303110
TR811~814	2SD202 or 2SC793	0308200, 1

W	X	Y
CO001,2	AC Outlet	2450010
PU001	Multi Connector	2420020
PU002	Voltage Selector	2410170
M001	200 μ A Tuning Meter	0900200
T001	400-5338 Power Trans.	4000510
PL001	7V 0.2A PHONO 1, 2 AUX Indicator	0400150
PL002		0400150
PL008		0400150
PL003		0400080
PL004	6.3V 0.25A Dial Scale Lamp	0400080
PL005		0400080
PL006		0400080
PL007		0400080
PL011	6V 0.1A Stereo Indicator	0400080
PL010		0400160
PL012	5V 0.06A Dial Pointer	0400101
VC301~303	AM 3-Gang Variable Capacitor	1200040
T306	9G-013	4200270
T102	300 Ω -75 Ω High Frequency Transformer	4290021
F001	Power Fuse 100V/127V 3A	0431261
	220V/250V 2A	0431241
F801	Quick Acting Fuse (2.5A)	0430111
F802	Quick Acting Fuse (2.5A)	0430111
D317	SV-02	0310490

* Manufacturer reserves right to change design and/or specifications without notice for purpose of improvement.

